

### **REMARKS**

Please reconsider the present application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering the present application and indicating that claims 5-8, 20-22, 24-26, and 35-37 contain allowable subject matter.

#### **I. Disposition of Claims**

Claims 1-37 are currently pending in the present application. By way of this reply, claims 12, 19, 30, and 34 have been amended.

#### **II. Claim Amendments**

Claims 12, 19, 30, and 34 have been amended to correct minor informalities. No new matter has been added by way of these amendments.

#### **III. Objection(s) to the Drawings**

Figure 3 was objected to for not containing a reference character mentioned in the Specification. A replacement sheet showing Figure 3 as corrected is enclosed herewith. Accordingly, withdrawal of the objection to the drawings is respectfully requested.

#### **IV. Information Disclosure Statement**

Applicant has not received an initialed PTO-1449 for the Information Disclosure Statement filed with the present application on March 28, 2001. Applicant has also not received an initialed PTO-1449 for the Information Disclosure Statement filed on July

24, 2003. Applicant respectfully requests consideration and return of initialed PTO-1449s for each of the referenced Information Disclosure Statements.

#### **V. Rejection(s) Under 35 U.S.C § 102**

Claim 14 of the present application was rejected under 35 U.S.C. § 102(b) as being anticipated by the reference entitled “Modeling of Power Distribution Systems for High-Performance Microprocessors” authored by Herrell et al. (hereinafter “Herrell”). For the reasons set forth below, this rejection is respectfully traversed.

The present invention is generally directed to a technique for simulating a CPU power distribution system. With reference to the exemplary embodiment of the present invention shown in Figure 2 of the present application, the simulation of a CPU power distribution system includes: (i) power converter models **38A**, **38B**, **38C**, **38D** (further described with reference to Figure 3 of the present application); (ii) a board model **42** (further described with reference to Figures 4 and 5 of the present application); (iii) a package model **46** (further described with reference to Figures 6 and 7 of the present application); and (iv) a chip model **50** (further described with reference to Figures 8A and 8B of the present application). *See* Specification, paragraph [0029]. Accordingly, independent claim 14 of the present application requires, in part, means for modeling a power converter, means for modeling a board, means for modeling a package, and means for modeling a chip.

Herrell, on the other hand, fails at least to disclose the limitations of independent claim 14 discussed above. Although Herrell, which was cited by Applicant, discloses a technique for modeling and simulating the response of power distribution systems (*see*

Herrell, Abstract), Herrell fails at least to disclose modeling a power converter. With reference to Figure 2 of Herrell, Herrell states:

*Assuming a uniform current flow demanded by the chip*, the main features of the power distribution network can be captured with the simplified equivalent circuit shown in Fig. 2. As can be seen, the model includes the chip, on-die decoupling capacitance, C4 bumps, the power/ground planes and interconnecting vias in the package, connected, on-package and on-board (electrolytic) decoupling capacitors, transmission line representing the motherboard, and slope impedance of the switching regulator.

See Herrell, page 241, Section II, part A (emphasis added); *see also* Herrell, Abstract; Section I (failing to disclose a power converter model). It is clear from this description that Herrell does not use a power converter model. Instead, Herrell assumes a uniform current flow demanded by the chip, thereby obviating any need in Herrell to have a separate power converter model. Further, the description of Figure 2 of Herrell is silent as to any model of a power converter.

On the other hand, Figure 3 of the present application shows a power converter model that may be used in a simulating a CPU power distribution system. Power provided by the power converter model is not assumed and may not be uniform. Accordingly, Herrell fails at least to disclose a means for modeling a power converter model as required by independent claim 14 of the present application.

In view of the above, Herrell fails to show or suggest the present invention as recited in independent claim 14 of the present application. Thus, independent claim 14 of the present application is patentable over Herrell. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

## VI. Rejection(s) Under 35 U.S.C. § 103

### Claims 1-3

Claims 1-3 of the present application were rejected under 35 U.S.C. § 103(a) as being unpatentable over Herrell in view of U.S. Patent No. 5,737,202 issued to Shimamori (hereinafter “Shimamori”). For the reasons set forth below, this rejection is respectfully traversed.

Independent claim 1 of the present application requires, in part, a plurality of power converter models. As discussed above, Herrell fails to disclose, or otherwise teach, the use of a power converter model.<sup>1</sup> Shimamori, as explained below, also fails to disclose a power converter model.

The purported power converter units **12**, **13**, **23** shown in Figure 1 of Shimamori are actual implementations of power converters. They are not power converter units *modeled* using resistive, capacitive, and inductive elements as shown in Figure 3 of the present application. In other words, Shimamori does not disclose power converter *models*; instead, Shimamori discloses the structure of power converter units as implemented within an actual power supply system.

Those skilled in the art will note that for simulation purposes, a component of a system is modeled using fewer and simpler elements than would otherwise be used should the actual implemented component be simulated. Modeling is used for simulation so that the simulated data set is relatively small (as compared to a data set containing

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<sup>1</sup> Further, Applicant notes that the Office Action of July 1, 2004 states that Herrell does not expressly disclose a plurality of power converter models. See Office Action of July 1, 2004, page 4, item 11.

detailed implementation information) and simulates faster (as compared with a data set containing detailed and complete implementation information). Thus, the reliance on Shimamori as disclosing component *models* is misplaced. Accordingly, Shimamori fails at least to disclose a plurality of power converter models as required by independent claim 1 of the present application.

Moreover, Applicant notes that Herrell and Shimamori are not properly combinable. The Examiner cannot combine prior art references to render a claimed invention obvious by merely showing that all the limitations of the claimed invention can be found in the prior art references. Instead, there must a suggestion or motivation to combine the references within the prior art references themselves. In other words, regardless of whether prior art references can be combined, there must an indication within the prior art references *expressing desirability* to combine the references. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990) (emphasis added). Further, the present application *cannot be used a guide* in reconstructing elements of prior art references to render the claimed invention obvious. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991) (emphasis added).

In the instant case, Herrell discloses a technique for modeling a power distribution system using circuit modeling concepts (*see, e.g.*, Herrell, Figure 2), while Shimamori is directed to the implementation of a redundant power supply system (*see, e.g.*, Shimamori, Abstract; Figures 1-12). There is no suggestion in Herrell (or Shimamori) as to why one skilled in the art presented with the modeling teachings of Herrell would turn to Shimamori, which only discloses actual implementations of components, not the models thereof. Further, there is no suggestion in Shimamori (or Herrell) as to why one skilled in the art presented with the teachings of Shimamori regarding implementing redundant

power supply systems would turn to Herrell, which discloses techniques for modeling a system for simulation. Thus, because there is no indication expressing desirability to combine the teachings of Herrell and Shimamori, Herrell and Shimamori cannot be properly combined for 35 U.S.C. § 103 purposes.

In view of the above, Herrell and Shimamori (i) are not properly combinable, and (ii) whether considered separately or in combination, fail to show or suggest the present invention as recited in independent claim 1 of the present application. Thus, independent claim 1 of the present application is patentable over Herrell and Shimamori. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 4, 9-13, 15-19, 23, and 27-34

Claims 4, 9-13, 15-19, 23, and 27-34 of the present application were rejected under 35 U.S.C. § 103(a) as being unpatentable over Herrell in view of Shimamori and U.S. Patent No. 6,385,565 issued to Anderson et al. (hereinafter "Anderson"). For the reasons set forth below, this rejection (i) is improper with respect to claims 4, 9-13, 17-19, 23, and 27-34, and (ii) is respectfully traversed with respect to claims 15 and 16.

Anderson, which is relied upon for rejecting claims 4, 9-13, 17-19, 23, and 27-34 of the present application, is prior art to the present application under 35 U.S.C. § 102(e)(2). Therefore, because (i) Anderson is prior art to the present application under 35 U.S.C. § 102(e) and (ii) both Anderson, as indicated on the face of the publication, and the present application, by way of an Assignment recorded at Reel 011647, Frame 0391, are assigned to Sun Microsystems, Inc., Anderson cannot be properly used in an

obviousness rejection under 35 U.S.C. § 103(c). Accordingly, the use of Anderson in an obviousness rejection of the claims of the present application is improper, and withdrawal of the rejections of claims 4, 9-13, 17-19, 23, and 27-34 is respectfully requested.

With respect to independent claim 15 of the present application, Herrell and Shimamori fail at least to disclose modeling a power converter as discussed above. Further, as discussed above, Herrell and Shimamori are not properly combinable. Thus, independent claim 15 of the present application is patentable over Herrell and Shimamori. Dependent claims are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

## VII. Conclusion

Applicant believes this reply is fully responsive to all outstanding issues and places the present application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below.

Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 03226.064001; P5346).

Respectfully submitted,

Date: \_\_\_\_\_

9/29/04

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